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Arthromoniliphora araucariae gen. & sp. nov. from Brazilian pine

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Abstract—A new genus and species, *Arthromoniliphora araucariae*, is described and illustrated. This fungus is distinguished by differentiated hyaline conidiophores that are branched above the globose base and robustly cylindrical below, moniliform and subulate toward the apex. The conidia are thallic-arthric, cylindrical, bacilliform to cuneate, and hyaline and occur in unbranched chains formed by disarticulation of the moniliform, subulate conidiophore branches.

Key words—*Araucaria angustifolia*, asexual fungi, conidial fungi, taxonomy

Introduction

During a survey of hyphomycetes associated with plant litter in Floresta Nacional de São Francisco de Paula, Rio Grande do Sul State, Brazil, an interesting fungus was collected. This fungus shows remarkable differences from all previously described genera (Seifert et al. 2011) and is therefore described as a new genus and species.

Material & methods

Samples of litter of *Araucaria angustifolia* (Brazilian pine; Paraná pine) were placed in paper bags. In the laboratory the samples were placed in Petri dish moist chambers and stored in a 170 L polystyrene box with 200 mL sterile water plus 2 mL glycerol at 25°C for 30 days (Castañeda-Ruiz 2005). Mounts were prepared in PVL (polyvinyl

alcohol, lactic acid, and phenol). Measurements were made at a magnification of ×1000. Micrographs were obtained with an Olympus BX51 microscope equipped with bright field and Nomarski interference optics. The type specimen is deposited in the Herbarium of Universidade Estadual de Feira de Santana, Bahia, Brazil (HUEFS).

Taxonomy

Arthromoniliphora S.S. Silva, Gusmão & R.F. Castañeda, **gen. nov.**

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Differs from *Arthrographis* and *Geotrichum* by its moniliform, closely fasciculate conidiophores and its conidia with a highly variable number of septa.

Type species: *Arthromoniliphora araucariae* S.S. Silva et al.

Etymology: Greek *Arthro-*, meaning jointed (referring to thallic disarticulation) + *-monili-* Latin, meaning cylindrical but contracted at regular intervals + *-phora* referring to the conidiophores.

Conidial fungi. Colonies on the natural substratum effuse, white. Conidiophores differentiated, single, densely fasciculate, branched, moniliform, septate, hyaline. Conidiogenous hyphae moniliform, subulate, holothallic, discrete, determinate. Conidial secession schizolytic. Conidia thallic-arthric, in unbranched chains, unpigmented, unicellular or multiseptate, cylindrical, doliiform or cuneate, forming by disarticulation of the terminal moniliform conidiogenous conidiophore branches.

Arthromoniliphora araucariae S.S. Silva, Gusmão & R.F. Castañeda, **sp. nov.**

MycoBank MB 813428 Figs 1–3

Differs from all *Arthrographis* and *Geotrichum* spp. by its densely fasciculate conidiophores that are moniliform and cylindrical below and subulate above, and its cylindrical, unicellular to multiseptate conidia.

Type: Brazil, Rio Grande do Sul State, São Francisco de Paula, Floresta Nacional de São Francisco de Paula, 29°25′S 50°23′W, alt. 838 m, on decaying twig of *Araucaria angustifolia* (Bertol.) Kuntze (*Araucariaceae*), 10.III 2015, S.S. Silva (**Holotype**: HUEFS 216008).

Etymology: Latin *araucariae*, meaning growth on an *Araucaria* species.

Colonies on the natural substratum effuse, hairy, white. Mycelium superficial and immersed. Hyphae septate, branched, smooth, hyaline, 3–5 µm diam, sometimes forming a rudimentary globulose stroma. Conidiophores distinct, single, erect, compact fasciculate, branched just at one level near the base, moniliform, subulate toward apex of each branch, hyaline, multiseptate, 60–250 × 5–6 µm. Conidiogenous branches moniliform, subulate, holothallic, multiseptate, hyaline, discrete, determinate, 38–100 × 2.5–4 µm. Conidial secession schizolytic. Conidia thallic-arthric, in unbranched chains, hyaline, 0–36-septate, cylindrical, doliiform or cuneate, truncate at

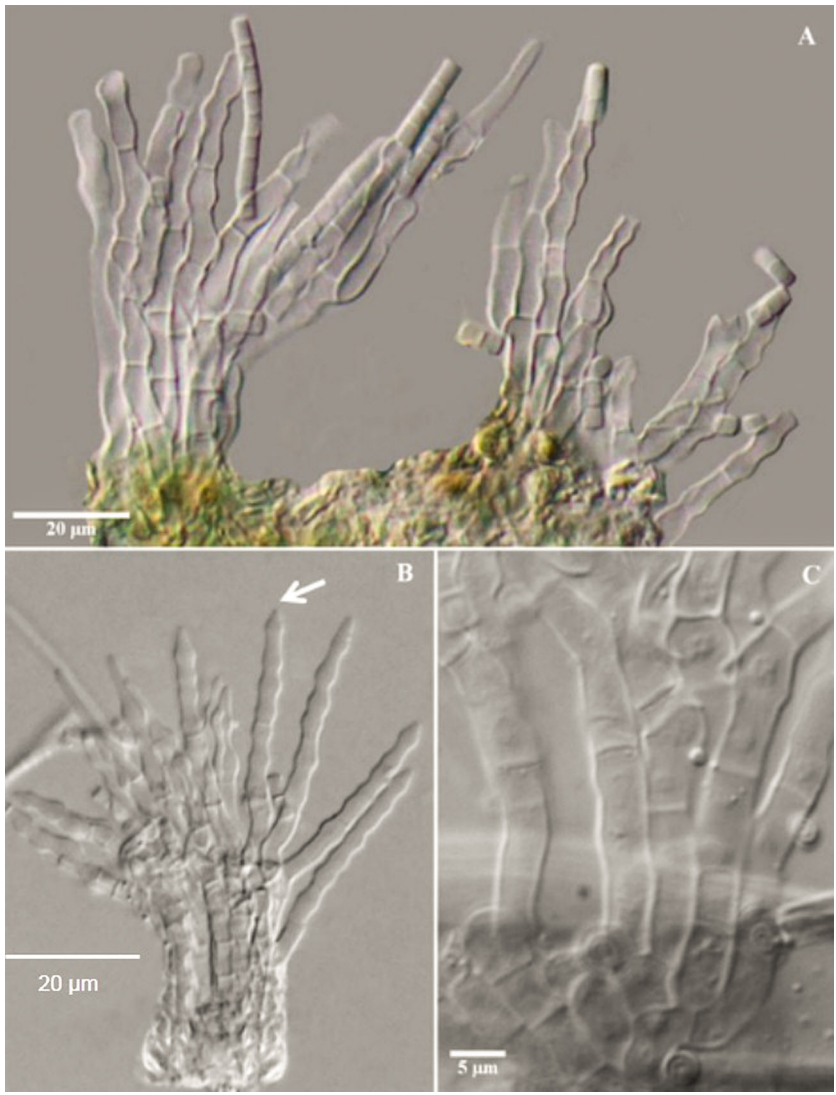

Fig. 1. *Arthromoniliphora araucariae* (ex holotype, HUEFS 216008). A, B. Conidiophores, coniiogenous branches, and conidia. C. Rudimentary stroma and basal part of conidiophores.

the ends, sometimes truncate at the base and obtuse at the apex, 3.5–92 × 2.5–4 µm forming by disarticulation of the terminal, subuliform, moniliform conidiogenous branches of the conidiophores

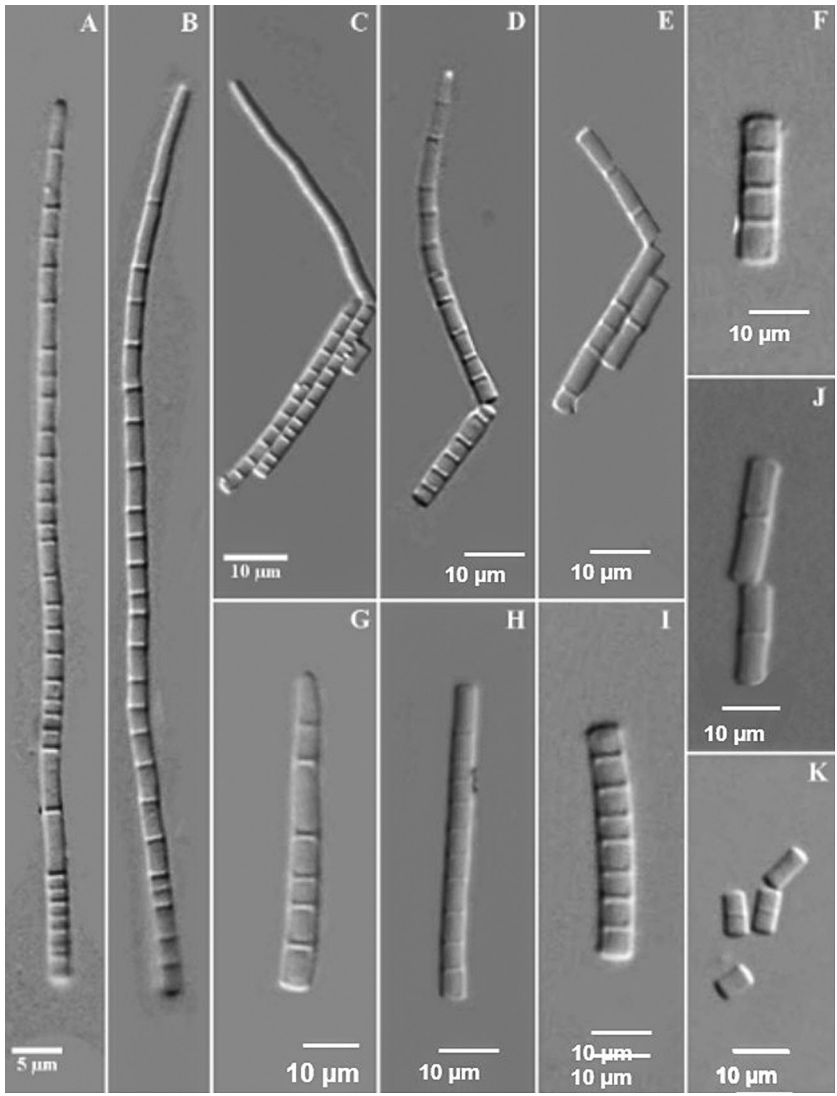

Fig. 2. *Arthromoniliphora araucariae* (ex holotype, HUEFS 216008). Conidial chains and conidia.

Comments—The genera *Arthrographis* G. Cochet ex Sigler & J.W. Carmich., *Geomyces* Traaen, and *Geotrichum* Link superficially resemble *Arthromoniliphora* in their hyaline thallic-arthric conidia produced by disarticulation of fertile hyphae. In *Arthrographis,* however, conidiophores are multi-branched, producing

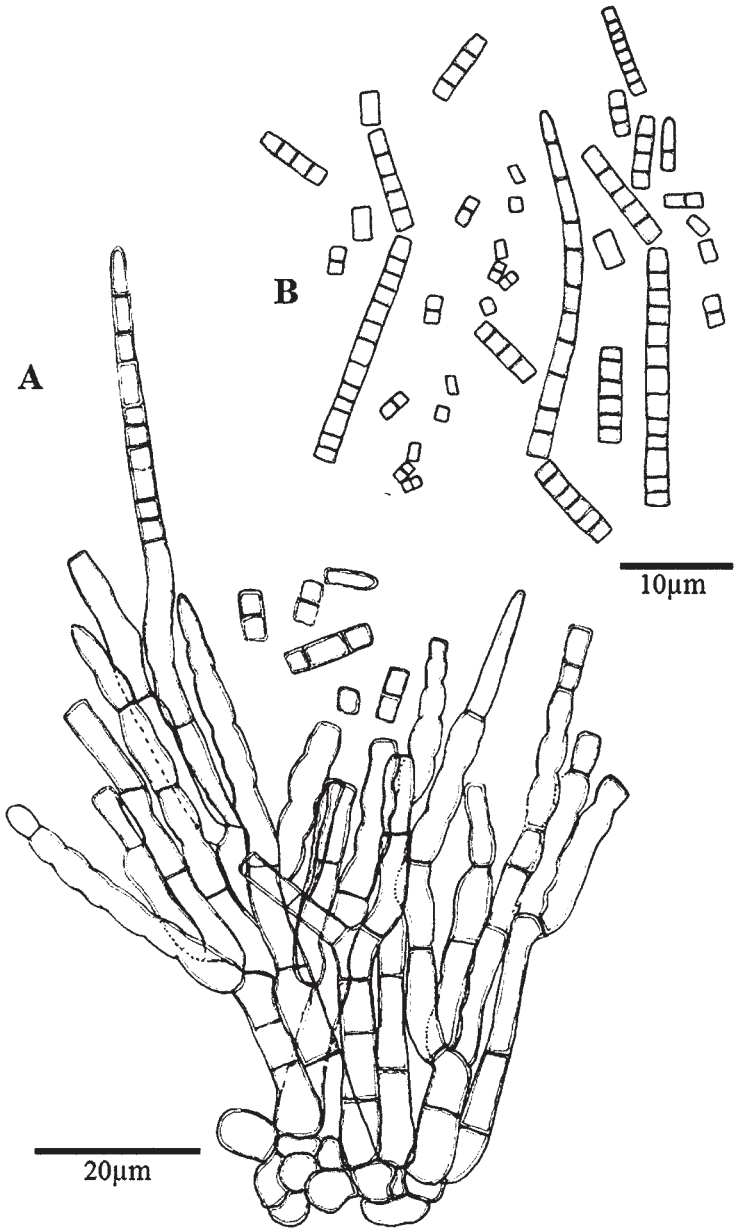

Fig. 3. *Arthromoniliphora araucariae* (ex holotype, HUEFS 216008).
A. Conidiophores, conidiogenous branches, and conidia. B. Conidia.

conidia that are globose, cylindrical, Y-shaped or irregular (usually discoid), rounded or subtruncate at the ends after disarticulation (Sigler & Carmichael 1976, Giraldo et al 2014). *Geomyces* has branched hyaline conidiophores, but the conidia have separating cells and the conidial secession is rhexolytic. *Geotrichum* is characterized by undifferentiated conidiophores, and after disarticulation of the fertile hyphae the conidia are unicellular, cylindrical, Y-shaped to irregular, sometimes forming chains, or slimy or yeast-like (Cole & Kendrick 1969, Sigler & Carmichael 1976, Hoog et al. 2011, Seifert et al. 2011). *Thedgonia* B. Sutton (Sutton, 1973) is somewhat similar to *Arthromoniliphora*, but its conidiogenous cells were described as polyblastic and sympodial and its conidia as blastocatenate, cylindrical, and 0–3-septate by Sutton (1973), while Seifert et al. (2011) described the conidial ontogeny as thallic-arthric. The *Thedgonia* conidiophores are branched and cylindrical but not moniliform and subulate as in *Arthromoniliphora*

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